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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/801,048 | 03/08/2001 | Jin-soo Kim | Q62698 | 4246 |

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LAW OFFICES

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, DC 20037-3213

EXAMINER

PHAN, RAYMOND NGAN

ART UNIT

PAPER NUMBER

2111

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/801,048

Applicant(s)

KIM, JIN-SOO

Examiner

Raymond Phan

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8 and 13 is/are rejected.
- 7) ☒ Claim(s) 2,4,9-12 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 2111

Part III DETAILED ACTION

Notice to Applicant(s)

1. This action is responsive to the following communications: amendment filed on January 13, 2004.
2. This application has been examined. Claims 1-14 are pending.
3. The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2111.

Specification

4. The title of the invention is accepted.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 5-8, 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jaramillo et al. (US No. 6,178,477) in view of Gillingham (US No. 6,546,476).

In regard to claims 1, 7, Jaramillo et al. disclose the method of delivering a command in a bus system including one or more master devices and two or more

slave devices comprising the step of (a) delivering a first command to the first slave device (see col. 5, line 56 through col. 6, line 25); (b) delivering a second command to the second slave device in advance of the completion of data transfer according to the first command (see col. 5, line 56 through col. 6, line 52). But Jaramillo et al. do not specifically disclose delivering a command to the second device at a point in time which is less than or equal to a latency time of the second device. However Gillingham discloses the step of delivering a second command to the second device at a point in time which is less than or equal to a latency time of the second device (see col. 6, line 42 through col. 7, line 15). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Gillingham within the system of Jaramillo et al. because it would operate to maximize the overall efficiency of the memory system by making optimum usage of the data bus.

In regard to claim 3, Gillingham discloses the slave device include a memory device and a slave controller for controlling memory device (see figure 1B), wherein the step (a) comprises the step of delivering the first command to the first slave controller (see col. 6, line 42 through col. 7, line 15); wherein the step (b) comprising the step of delivering the second command to the second slave controller at a point in time which is less than or equal to the latency time of the second device in advance of the completion of data transfer according to the first command (see col. 6, line 42 through col. 7, line 15). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Gillingham within the system of Jaramillo et al. because it would operate to maximize the overall efficiency of the memory system by making optimum usage of the data bus.

In regard to claim 5, Gillingham discloses the use of SDRAM as a memory device and SDRAM controller (see col. 3, lines 7-16, col. 6, line 42 through col. 7, line 15). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Gillingham within the system of Jaramillo et al. because it would operate to maximize the overall efficiency of the memory system by making optimum usage of the data bus.

In regard to claims 6, 8, 13, Jaramillo et al. disclose the method of delivering a command in a bus system including one or more master devices and two or more slave devices comprising the step of delivering a first command to the first slave device (see col. 5, line 56 through col. 6, line 25); delivering a second command to the second slave device in advance of the completion of data transfer according to the first command (see col. 5, line 56 through col. 6, line 52). But Jaramillo et al. do not specifically disclose providing respective difference values between a longest of the latency times of all the slave devices and the latency time of each slave device; delivering a command to the second device at a point in time which is less than or equal to a latency time of the second device. However However Gillingham discloses the step of delivering a second command to the second device at a point in time which is less than or equal to a latency time of the second device (see col. 6, line 42 through col. 7, line 15). Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have combined the teachings of Gillingham within the system of Jaramillo et al. because it would operate to maximize the overall efficiency of the memory system by making optimum usage of the data bus.

Allowable Subject Matter

7. Claims 2, 4, 9-12, 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Amendment

8. Applicant's arguments, see pages 3-5, filed on Jan 13, 2004, with respect to the rejection(s) of claim(s) 1-8, 13-14 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Gillingham.

Conclusion

8. Claims 1, 3, 5-8, 13 are rejected. Claims 2, 4, 9-12, 14 are objected.

9. The prior arts made of record and not relied upon are considered pertinent to applicant's disclosure.

Umetsu et al. (US No. 5,649,209) disclose a bus coupling information processing system for multiple access to the system bus.

Revilla et al. (US No. 5,925,118) disclose a methods and architecture for overlapped read and write operations.

Hughes (US No. 5,784,582) discloses a data processing system having memory controller for supplying current request and next request for access to the shared memory pipeline.

Zuravleff et al. (US No. 5,630,096) disclose a controller for a synchronous DRAM that maximizes throughput by allowing memory requests and commands to be issued out of order.

MacDougall et al. (US No. 4,253,147) disclose a memory unit with pipeline cycle of operations.

Kim (US No. 6,671,761) discloses a bus system.

Andrewartha et al. (US No. 5,925,118) disclose a controlling SDRAM memory by using truncated burst read-modify write memory operations.

Banks et al. (US No. 6,219,747) disclose a methods and apparatus for variable length SDRAM transfers.

Tsuchida et al. (US No. 6,484,246) disclose a high-speed random access semiconductor memory device.

Pawlowski (US No. 6,392,955) discloses a circuit for eliminating idle cycles in a memory device.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Raymond Phan, whose telephone number is (703) 306-2756. The examiner can normally be reached on Monday-Friday from 6:30AM- 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Primary, Paul Myers can be reached on (703) 305-9656 or via e-mail addressed to paul.myers@uspto.gov. The fax phone number for this Group is (703) 746-7239.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [raymond.phan@uspto.gov].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Raymond Phan
3/22/04

